U.S. Environmental Protection Agency
Applicability Determination Index

Control Number: NB20

Category: NSPS
EPA Office: SSCD
Date: 02/04/1983
Title: KPL Applicability Determination
Recipient: Walter, Carl M.
Author: Reich, Edward E.

Subparts: Part 60, D, Foss. Fuel Fired Steam Gen. (post 8/17/71)
Part 60, Da, Elec. Util. Steam Gen. Units (post 9/18/78)

References: 52.21(b)
52.21(j)
52.21(k)
60.40
60.40(b)
60.40a
60.41(b)
60.41a

Abstract:

Is petroleum coke a fossil fuel?

Petroleum coke is not a "fossil fuel". Fossil fuel is defined at 60.41(b) and 60.41a as "natural gas, petroleum, coal and any form of solid, liquid or gaseous fuel derived from such material for the purpose of creating useful heat." Since petroleum coke is a by- product of the refining process and is not produced for the purpose of creating useful heat, it is not considered to be a fossil fuel. This memo also discusses PSD issues.

Letter:

Control Number: NB20

February 04, 1983

MEMORANDUM

SUBJECT: KPL Applicability Determination

FROM: Director
Stationary Source Compliance Division
Office of Air Quality Planning & Standards

TO: Carl M. Walter, Chief
Air Branch, Region VII

I wish to address your December 13, 1982 request for an applicability determination concerning Kansas Power and Light Companyþs (KPL) power plant in Hutchinson, Kansas. The plant was constructed in the mid 1960þs, burns natural gas with fuel oil as standby, and has a rated output of 190 MW.

KPL has the opportunity to obtain petroleum coke from a nearby refinery. The coke would be slurried with water to a consistency of No. 6 fuel oil and pumped to the plant site to be burned as fuel. At least 20% of the heat input would have to be from natural gas at all times. Whether KPL actually uses petroleum coke depends on whether such use will subject the boilers to federal regulations under NSPS and PSD.

Your memorandum first asks if petroleum coke is a fossil fuel. Fossil fuel is defined at 60.41(b) and 60.41a as "natural gas, petroleum, coal and any form of solid, liquid or gaseous fuel derived from such material for the purpose of creating useful heat." Petroleum coke, a finely divided powder of high carbon content, and usually high sulfur content, comes from the coker and is a by-product in the refining process. In the past it has been used as a material to construct anodes and cathodes for use in aluminum reduction processes. Since petroleum coke is a by-product and is not produced for the purpose of creating useful heat, it cannot be considered a fossil fuel. The facility is not subject to the Subpart D NSPS when burning petroleum coke because 60.40(b) precludes such coverage: "Any change to an existing fossil fuel-fired steam generating unit to accommodate the use of combustible materials, other than fossil fuels as defined in this subpart, shall not bring that unit under the applicability of this subpart."

I do wish to point out that the boilers could become subject to the Subpart D standard at a later date. This would occur if the boilers switched to burning an alternative fossil fuel which they were not designed to accommodate before the August 17, 1971 Subpart D applicability date.

Regarding the term "capable of accommodating" in 52.21(b)(2)(iii)(e) as it applies to KPL's proposed change, an analysis must be performed, for Prevention of Significant Deterioration applicability purposes, to determine whether the boilers were capable of accommodating the alternate fuel before January 6, 1975. The determination in this situation should be based on an inspection of the design specifications of the boilers.

According to Charles Whitmore, the boilers have never had the physical capability of handling bottom ash. The design specifications also do not contain any such provisions. The boilers, thus, are not considered capable of accommodating petroleum coke as an alternative fuel. This determination is unaffected by the type of fuel burned, since the PSD regulations do not limit their applicability to fossil fuel firing (although a steam electric plant burning non-fossil fuel must have the potential to emit 250 tons per year to be considered a major source).

It appears from your memo that no additional changes to the power plant are necessary to accomplish the fuel switch; therefore, the PSD analysis will be focused on the boilers themselves. Since these boilers are not capable of accommodating the alternative fuel, it must next be determined whether this change would result in a significant net increase in emissions at the plant. If the answer to this question is yes, then PSD will apply.

Once PSD applicability has been affirmed, it is then necessary to undertake a BACT analysis as required under 52.21(j). That section, under paragraph 3, requires that a major modification apply best available control technology for each pollutant subject to regulation under the Act for which it would result in a significant net emissions increase at the source. This requirement applies to each proposed emissions unit at which a net emissions increase in the pollutant would occur as a result of a physical change or change in the method of operation in the unit. This section clearly intends that technology review be assessed on an emissions unit rather than on a plant-wide basis.

In addition to the BACT analysis, an air quality analysis must be conducted for all pollutants emitted in significant amounts as a result of the conversion. This analysis must demonstrate that the emissions will not cause or contribute to a violation of any NAAQS or of any applicable maximum allowable increase over the baseline concentration in any area. The requirements of paragraph (k) of 40 CFR 52.21 apply to significant net increases of the relevant criteria pollutant, taking into account all contemporaneous emissions changes at the source.

This determination has received the concurrence of the Office of General Counsel, the Control Programs Development Division, and the Emission Standards and Engineering Division. Please contact Robert Myers at 382-2875 if you require additional information.

Edward E. Reich
(signed)

cc: Earl Salo
Walt Stevenson
Larry Jones
Jack Farmer
Charles Whitmore
Mike Alushin
Peter Wyckoff
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